STUDY REPORT

Study Title

MELTING POINT TEST WITH [redacted]

Author:
Candice [redacted]

Study completion date:
2011/7/25

Test Facility

[redacted]
Taiwan, R.O.C.

Report No.
P252-501-R7.2

GLP compliance
NO

CONTENTS

1. Summary

Information on a substance ´s melting point is one of the standard information requirements under Annex VII, section 7.2 of Regulation (EC) No 1907/2006 (“REACH Regulation”).

The melting point is defined as the temperature at which the phase transition from solid to liquid state at normal atmospheric pressure takes place. As the phase transition of many substances takes place over a large temperature range, it is often described as the melting range. The melting point serves as an indicator for the physical state (liquid or solid) of a substance.

Most of the methods to determine the melting point described are based on international and national standards (OECD 102, EU A.1). The various methods for determining the temperature (temperature range) of the phase transition from the solid to the liquid are shown. In practice, the temperatures at the initial melting and the final stage of melting are determined while heating a sample of the test substance at atmospheric pressure.

The study procedures described in this report were based on OECD 102 with test method:
Differential scanning calorimetry

Result: Melting point of test substance: 465.41 – 496.45 K (192.26 –196.3 ^{o}C)

2. Aim of the study

The aim of the study was to determine the melting point of test substance.

3. Guideline

The study procedures described in this report were based on OECD GUIDELINE FOR TESTING OF CHEMICALS, Adopted by the Council on 27th July 1995, Melting Point / Melting Range, No. 102. (OECD 102).

4. Definitions and units

The melting point is defined as the temperature at which the phase transition from the solid to the liquid state at atmospheric pressure takes place.

The conversion of kelvins to degrees Celsius is according to the formula

$$T = t + 273.15, \text{ where}$$

T is the Kelvin or thermodynamic temperature ant t the Celsius temperature.

5. Principle of the test

The temperature or temperature rang of the phase transition from the solid to the liquid state or from the liquid to the solid state is determined.

6. Materials and methods

Substance Name:	[redacted]
EC No. :	[redacted](assigned by ECHA)
IUPAC Name:	[redacted]
CAS No. :	[redacted]
CAS Name:	[redacted]
Trade name:	[redacted]
Substance type:	Mono constituent substance
Purity:	> 99%
Molecular formula:	[redacted]
Molecular Weight:	[redacted]
Impurities:	It is not technically possible to identify them. Number of unknown impurities: 2
Aggregate state at room temperature:	Crystalline powder
Colour:	White
Odour:	Odourless
Storage conditions:	

6.2. Reference substances

Reference substances do not need to be employed when investigating a substance.

6.3 Method

Method	Temperature range (in K)	Estimated accuracy (in K)
Differential thermal analysis and differential scanning calorimetry	173 to 1273	+/-0.5 up to 600 +/-2.0 up to 1273

6.4 Procedure

Study period
Initiated date: 25/07/2011
Completed date: 25/07/2011

Samples of the test substance and of a reference material are subjected to the same controlled temperature programme. The difference in energy input necessary to maintain identical temperatures between the substance and the reference material is recorded. When the sample undergoes a phase transition, the corresponding change of enthalpy gives a departure from the base line of the heat flow record.

Temperature programme
Nitrogen atmosphere, with a gas flow rate of 20 ml/min, heating rate of 10°C/min from 100℃-250℃

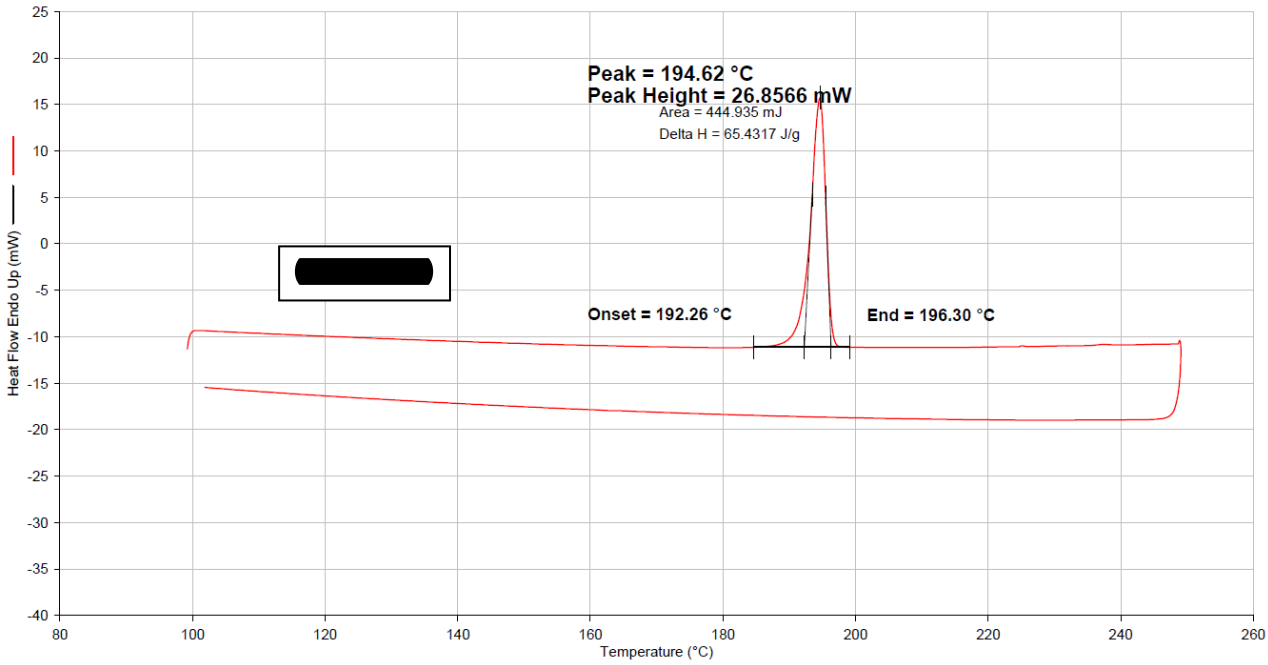
The resulting graph is then analysed and information about onset, peak and endpoint temperatures and changes in enthalpy for the various processes can be obtained using the computer software.

7. Data and reporting

The melting point can be given by:

$$T_m = \frac{\Delta H_m}{\Delta S_m}$$

ΔH_m is the melting temperature and ΔS_m is the change of entropy involved in the melting phase (entropy of fusion).



Result: Melting point of test substance: 465.41 – 496.45 K (192.26 –196.3 °C)

8. Reference

ECHA Guidance on information requirements and chemical safety assessment, Chapter R.7a: Endpoint specific guidance, section R. 7.1.2 Melting/Freezing point, May 2008.

OECD GUIDELINE FOR THE TESTING OF CHEMICALS, Adopted by the Council on 27th July 1995, Melting Point / Melting Range, No. 102, adopted: 27/07/1995.

Candice

_____

(Name and Signature of person responsible for the study)